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Résumé

Comparaison de l'utilisation des services de santé chez les pensionnaires des centres de soins de longue durée, les bénéficiaires de soins à domicile et les personnes âgées en bonne santé

Donna Wilson et Corrine Truman

En règle générale, la recherche semble confirmer la crainte selon laquelle l'utilisation des services de santé s'intensifie avec l'âge. Or la plupart des analyses sur le sujet se limitent à l'étude d'un seul service de santé au lieu de plusieurs, à l'utilisation des services de santé sur une période ne dépassant pas un an ou à leur fréquentation pendant les années 1970 ou 1980. Il y aurait donc lieu d'entreprendre des études exhaustives qui permettraient de mieux éclairer le choix des orientations et la prise de décisions. La présente étude compare trois groupes de personnes âgées : les pensionnaires des centres hospitaliers de soins de longue durée (CHSLD), les bénéficiaires de soins à domicile et les personnes âgées qui ne reçoivent aucuns soins. Les auteures ont analysé un échantillon représentatif de données individuelles et anonymes provenant des sources suivantes : données d'hospitalisation; données de centres de soins ambulatoires (chirurgie d'un jour, service de consultations externes et salle d'urgence); et données sur les services dispensés par les médecins, recueillies sur une période de deux ans par le ministère de la Santé de la province canadienne de l'Alberta. Ces données ont été analysées au moyen de tests statistiques descriptifs et comparatifs contenus dans le logiciel SPSS. Il ressort que les pensionnaires de CHSLD sont les moins susceptibles de recourir aux services de santé, à l'exception de ceux du médecin et du centre où ils séjournent. Par ailleurs, malgré les craintes à l'effet que l'on ait stigmatisé ou rationné les pensionnaires des CHSLD en ce qui concerne l'accès aux soins tertiaires, les résultats indiquent qu'ils ne sont pas désavantagés sur le plan des services hospitaliers, notamment en ce qui concerne le type ou la gamme de services offerts. Ces observations et d'autres résultats à ce sujet permettent de conclure que les CHSLD remplissent bien leur rôle à l'égard de la prise en charge de la santé et des besoins de santé des personnes les plus âgées de la société. Ils soulèvent aussi certaines questions concernant le caractère adéquat du système de soins à domicile et les soins de santé offerts aux personnes âgées en bonne santé.

Mots clés : utilisation des services de santé, soins de longue durée, personnes âgées, soins hospitaliers

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Comparing the Health Services Utilization of Long-Term-Care Residents, Home-Care Recipients, and the Well Elderly

Donna Wilson and Corrine Truman

Research has typically supported the concern that health services utilization increases with aging. Yet most health services utilization studies have focused on the use of 1 as opposed to all health services, the use of health services over 1 year as opposed to a longer period, and the use of health services during the 1970s or 1980s. Current, comprehensive utilization studies are needed in order to better inform health policy and health services decision-making. This study was designed to compare the health services utilization of 3 groups of seniors: those residing in long-term-care (LTC) facilities, those receiving home care, and those neither institutionalized nor receiving home care. Individual-anonymous and population-based inpatient hospital data, ambulatory care (day surgery, outpatient clinic, and emergency room) data, and physician services data collected by the health ministry of the Canadian province of Alberta over a 2-year period were analyzed using descriptive and comparative statistical tests available in the SPSS computer program. With the exception of physician and LTC services, LTC residents were the least likely to use health services. Furthermore, and despite concerns that LTC residents may be stigmatized or rationed with regard to access to tertiary care, the data indicate that LTC residents are not disadvantaged in terms of type or scope of hospital services. These and other findings suggest an appreciation for LTC in managing both the health and the care needs of the oldest seniors. The findings also raise concerns about the adequacy of formal home care and of the health care received by the well elderly.

Keywords: health services utilization, long-term care, continuing care, gerontology/geriatrics, aging, seniors, hospital

Virtually all published health services utilization research has supported the concern that utilization increases with age (Anderson, Pulcins, Barer, Evans, & Hertzman, 1990; Barer et al., 1989; Black, Roos, Havens, & MacWilliam, 1995; Desmeules, Huang, & Mao, 1993; Hertzman & Hayes, 1985; Roos, Montgomery, & Roos, 1987; Roos, Shapiro, & Tate, 1989; Shapiro & Tate, 1989; Stokes & Lindsay, 1996). Yet research focusing on health services utilization by the elderly has generally examined only the use of one as opposed to all health services, the use of health services over 1 year instead of a longer period, and the use of health services

during the 1970s or 1980s (Beringer & Flanagan, 1999; Ellencweig, Stark, Pagliccia, McCashin, & Tourigny, 1990; Hertzman et al., 1990; Kayser-Jones, Wiener, & Barbaccia, 1989; Shapiro, 1983; Shapiro, Tate, & Roos, 1987; Stark & Gutman, 1986; Williams, Fries, & Mehr, 1996). Recent health-care and health system developments, such as the shift to community-based care, may have considerably altered utilization patterns. Comprehensive new utilization studies are thus needed, to inform decision-making on health policy and health services.

To this end, a study was undertaken to describe and compare total health services utilization for three groups of senior citizens: (1) those who reside in nursing homes and other long-term-care (LTC) facilities, (2) those who receive home care, and (3) all other persons aged 65 and over who are not institutionalized and do not receive home care. As LTC residents are thought to comprise the oldest and most ill subpopulation in any modern society (Bridges-Webb, Britt, & Driver, 1987; DeCoster, Roos, & Bogdanoci, 1995; Lee, Kovner, Mezey, & Ko, 2001; Raina, Dukeshire, Lindsay, & Chambers, 1998; Roos, Havens, & Black, 1993; Rosenberg & Moore, 1997; Tully & Mohl, 1995), their health services utilization would be expected to be the highest among the three groups of seniors.

Design and Methods

The Canadian province of Alberta has a comprehensive set of population health service databases. Following receipt of research ethics approval from the University of Alberta, the Ministry of Health and Wellness was asked to provide the two most recent years of complete health services utilization data for three subpopulations of seniors. A 2-year time-frame was considered optimal, as the health of seniors can vary considerably from year to year and 2 years is the most common length of stay in Alberta LTC facilities. To protect the identity of subjects yet preserve researcher access to individual health services utilization data, the Ministry assigned each subject a unique anonymous number that matched the person's health services utilization. The three subpopulations were: (1) all persons aged 65 or older who had resided in a nursing home or auxiliary hospital continuously from April 1, 1997, through March 31, 1999 (N = 4,774); (2) all persons aged 65 or older who had been registered with Alberta's home-care program as having received formal home-care services over the same 2-year period (N = 7,029); and (3) a 10% sample of all other persons aged 65 or older on April 1, 1997, who were not institutionalized or receiving ongoing home care during the same 2-year period (n = 30,000). A 10% sample was sufficient for power spec-

ifications and for minimizing management difficulties associated with large databases.

Comprehensive health services data, but limited sociodemographic data, for all 41,803 subjects were obtained from five Ministry of Health and Wellness databases: Canadian Institute for Health Information Discharge Abstract Database (CIHI DAD), containing inpatient hospital services data collected on all separations from acute-care hospitals in Alberta, with separations involving both an admission and one or more overnight stays; Ambulatory Care Classification System (ACCS) Database, containing ambulatory-care data collected on all persons who receive health services in day surgery departments, outpatient departments, ambulatory clinics, and emergency rooms in Alberta; Alberta Physician Claims Assessment Database, containing physician services data collected for all billed physician services provided in any setting in Alberta; Alberta Home Care Information System Database, containing formal data collected on all services provided through Alberta's home-care program to registered home-care clients; and Alberta Long-Term-Care Resident Classification Database, containing client and care needs data routinely collected each fall on all persons residing in all 157 nursing homes and auxiliary hospitals in Alberta.

Data cleaning and programming was carried out prior to data analysis, as is necessary with large population datasets. During this process, minimal missing data (< 1%) were noted for all variables. The unique anonymous number assigned to each subject by the Ministry was used to link each individual's data for the 2-year period across all five databases. The SPSS computer program (Version 11.5) was used to analyze the data. Given the nature of the study, data analysis involved descriptive (measures of central tendency) and comparative (chi square, *t* test, and ANOVA) statistics, with univariate and bivariate tests chosen on the basis of level of variables and study purpose. As the study involved three distinct subpopulations, no age or gender standardization of groups was undertaken. Furthermore, as an initial comparison of health services utilization data for the first and second year revealed minimal differences, the 2 years of utilization data were combined into one dataset, with comparisons focused on utilization differences between the three subpopulations as opposed to over time. Another dataset was then created, this one containing aggregated health service utilization volume data for each person. For instance, if an individual was admitted to an emergency room once in the first year and twice in the second year, data programming ensured that the number 3 appeared in a corresponding column in the aggregate dataset. Each line of data in the aggregate dataset was meant to contain an individual's anonymous identification number,

sociodemographic data as of April 1, 1997, and a series of aggregated utilization data (i.e., number of admissions to hospital, total number of days in hospital, number of admissions to day surgery departments, number of day procedures performed, number of emergency room visits, etc.). The data-analysis plan for all datasets was essentially twofold: (1) a descriptive-comparative analysis of aggregated health services utilization data for all subjects as divided into the three population groups; and (2) descriptive-comparative analyses of health services utilization by individual subjects making up the three subpopulations, with these analyses focused on each distinct health service.

Results

Following a discussion of the sociodemographic and health status findings, the results are reported in two sections: (a) aggregate health services utilization comparisons, and (b) distinct health service utilization comparisons.

Sociodemographics and Health Status

The sociodemographic data confirmed that all subjects were 65 years of age or older, with almost identical age ranges for all three groups (65 to 104 or 105). Yet, on average, LTC residents and home-care recipients were considerably older (83.0 and 81.0, respectively) than the other elderly (72.8). The home-care group had the highest proportion of females (76.9%), followed by the LTC group (74.3%) and the other elderly group (54.9%). Although a larger proportion of all subjects (55.5%) lived in one of Alberta's two large urban centres (the cities of Edmonton and Calgary, home to two million of the province's three million inhabitants), home-care recipients more often lived outside these two centres (52.6%). In contrast, a higher proportion of LTC residents (57.6%) and the other elderly (57.0%) lived in these centres.

Unfortunately, the health status of the 41,803 individuals could not be compared. The three subpopulation groups could vary considerably with regard to health status and thus health-care needs. No health status information was available for the other seniors, aside from the fact that their use of health services could be understood as illustrating their general health state. The health of home-care recipients was described to a limited degree through their classification of care needs in the data contained in the 1997 Home Care Information System Database. Almost all (98.1%) of the 7,026 home-care recipients were classified as "long term," indicating that their health problems were irreversible and severe enough to warrant ongoing home care. The remainder were classified as

"short term," a classification for persons who are expected to need only 4 or 6 weeks of home care.

The health of the LTC residents could also be described through routinely collected LTC resident classification data for autumn 1997:

1. Ability to perform Activities of Daily Living (ADL). The average classification score for each LTC subject on all four ADL activities (eating, toileting, transferring, and dressing) was 4.2 (range 1–5, median 5, mode 5, SD 1.1). A score of 5 would indicate total dependency.
2. Behaviours of Daily Living (BDL) Requiring Intervention. The average composite score for 16 BDL concerns (wandering, hoarding or rummaging, aggressive or angry behaviour, agitated behaviour, suspicious behaviour, indiscriminate ingestion of foreign substances, inappropriate smoking, inappropriate sexual behaviour, inappropriate drug or alcohol use, resists or refuses care, is sad or depressed, demands attention, is suicidal, is anxious, has potential for injury, and ineffective coping) was 2.85 (range 1–4, median 3, mode 3, SD 0.7). A score of 4 would indicate severe behavioural problems requiring intervention.
3. Continuing Care Level (CCL). The average composite score of five concerns (urinary incontinence, bowel incontinence, not oriented to facility, not oriented to staff, reduced memory of instructions) was 2.0 (range 0–3, median 2, mode 3, SD 1.0). A score of 3 would indicate major concerns requiring much continuing care intervention.
4. Composite Care Requirement (CCR). This composite score, devised by the Ministry of Health and Wellness, was based on each subject's ADL, BDL, and CCL scores. The average CCR score for all LTC residents was 5.35 (range 1–7, median 6, mode 6, SD 1.35). A CCR score of 1, 2, or 3 would indicate minimal need for institutionally based care, while a CCR score of 5, 6, or 7 supports the use of institutionally based continuing care.

Aggregated Health Services Utilization

Considerable group-based differences in health services utilization were found when the aggregated health services volume data were analyzed. As illustrated in Table 1, home-care recipients were twice as likely as LTC residents to be admitted to hospital, have ambulatory procedures performed, or visit emergency rooms within the 2-year span. The other seniors also were more often hospitalized, accessed outpatient and day surgery units more often, and visited emergency rooms more often during the 2 years than the LTC residents.

Table 1 ***Health Services Utilization Rates (Individually Aggregated Volume Data)***

Utilization Over 2 Years Combined	**LTC Residents *N* (%)**	**Home-Care Recipients *N* (%)**	**Other Elderly Sample *N* (%)**
	4,774 (100)	7,029 (100)	30,000 (100)
Admitted to hospital 1 or more times	958 (20.1)	3,880 (55.2)	6,565 (21.9)
Had 1 or more ambulatory procedures completed	2,042 (42.8)	5,173 (73.6)	14,121 (47.1)
Had 1 or more emergency room visits	1,662 (34.8)	4,992 (70.1)	11,014 (36.7)
Had 1 or more physician services	4,573 (95.8)	6,926 (98.6)	28,772 (95.9)

With two exceptions — physician services utilization and LTC facility utilization — LTC residents had lower average rates of health service utilization (Table 2). Notably, LTC residents had the lowest average number of admissions to hospital, inpatient days in hospital, ambulatory procedures performed, and emergency room visits. In contrast, LTC residents received more physician services, with this difference also reflected in a higher average cost of physician services over the 2 years.

(Non-aggregated) Individual Health Services Utilization

As shown in Table 3, the utilization data for each health service illustrate some of the same group-based utilization patterns. More specifically, home-care recipients had the highest average number of days in hospital, while the other elderly had the highest number of procedures performed, on average, as hospital inpatients. The data also illustrate that LTC residents had the highest average cost weight of care per inpatient hospital episode (cost weight of care is an index figure that reflects both the intensity of treatments and length of stay), saw the most physicians, on average, when admitted to hospital or to an ambulatory-care setting, had the highest average number of procedures performed when admitted to an ambulatory-care (outpatient, day surgery, or emergency room) setting, and had the highest proportion of medical specialists among their care providers.

Table 2 ***Health Services Utilization Comparisons (Individually Aggregated Volume Data)***

Utilization Over 2 Years Combined	LTC Residents 4,771	Home-Care Recipients 7,026	Other Elderly Sample 30,000	Statistical Test (2-sided)
Hospital admissions – mean (*SD*) – range	.29 (0.7) 0–9	1.46 (2.21) 0–31	.37 (.93) 0–19	$F = 2365.7$ $df = 2$ $\star p = .000$
Hospital inpatient days – mean (*SD*) – range	2.59 (8.73) 0–198	16.38 (29.63) 0–442	2.77 (9.51) 0–349	$F = 2449.0$ $df = 2$ $\star p = .000$
Number of ambulatory procedures – mean (*SD*) – range	1.47 (4.47) 0–59	4.24 (12.20) 0–316	1.74 (5.87) 0–322	$F = 366.2$ $df = 2$ $\star p = .000$
Emergency room visits – mean (*SD*) – range	.74 (2.14) 0–61	3.12 (5.94) 0–253	1.08 (3.43) 0—227	$F = 867.1$ $df = 2$ $\star p = .000$
Number of physician procedures – mean (*SD*) – range	44.82 (36.16) 0–339	21.29 (19.24) 0–282	18.18 (15.81) 0–323	$F = 3738.5$ $df = 2$ $\star p = .000$
Physician service fee ($) – mean (*SD*) – range	892.7 (681.7) 0–13593.5	633.6 (693.3) 0–13435.7	504.7 (469.85) 0–14903.1	$F = 1111.7$ $df = 2$ $\star p = .000$

$\star$ significant p value

Table 3 ***Health Services Utilization, Each Health Service Compared by Population Subgroup***

Health Service Utilisation Over 2 Years	LTC Residents	Home-Care Recipients	Other Elderly Sample	Statistical Test (2-sided)
Total hospital separations (N)	1,383	10,251	11,121	–
Cost weight of care per care episode – mean (*SD*) – range	1.11 (1.00) .15–19.83	1.01 (1.08) .15–30.77	1.02 (1.12) .12–27.03	$F = 5.025$ $df = 2$ $\star p = .007$

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Table 3 (cont'd)

Health Service Utilization Over 2 Years	LTC Residents	Home-Care Recipients	Other Elderly Sample	Statistical Test (2-sided)
Days in hospital per care episode – mean (*SD*) – range	9.13 (10.28) 1–106	11.40 (14.64) 1–392	7.54 (9.36) 1–399	F=273.1 df=2 ⋆p=.000
Number of procedures per care episode – mean (*SD*) – range	.81 (1.21) 0–10	.63 (1.23) 0–10	1.15 (1.58) 0–10	F=360.0 df=2 ⋆p=.000
Physicians seen per care episode – mean (*SD*) – range	1.65 (.87) 1–8	1.58 (.98) 1–8	1.53 (.89) 1–8	F=13.5 df=2 ⋆p=.000
At least one physician per care episode was a specialist (*N*) – true (%) – false (%)	1,383 886 (64.1) 497 (35.9)	10,251 4809 (46.9) 5442 (53.1)	11,121 8033 (72.2) 3088 (27.8)	χ^2=767.1 df=2 ⋆p=.000
Total ambulatory care services **(N)**	3,764	20,950	40,558	–
Number of procedures performed per episode – mean (*SD*) – range	1.68 (1.18) 1–10	1.56 (.95) 1–10	1.53 (.92) 1–10	F=43.3 df=2 ⋆p=.000
Number of physicians seen per care episode – mean (*SD*) – range	1.08 (.31) 1–4	1.08 (.29) 1–5	1.06 (.24) 1–4	F=9.913 df=2 ⋆p=.000
Physician was a specialist at each care episode – true – (%) – false – (%)	558 (14.8) 3,206 (85.2)	1,997 (9.5) 18,953 (90.5)	5,034 (12.4) 35,524 (87.6)	F=75.8 df=2 ⋆p=.000
Total physician services provided **(N)**	252,598	236,583	714,072	–
Amount paid per care episode – mean (*SD*) – range	24.23 (40.50) 1.02–2607.57	48.60 (83.88) 1.38–3504.38	44.82 (97.18) 1.38–5758.78	F=6481.5 df=2 ⋆p=.000
⋆significant p value				

Discussion and Implications

The senior citizens who lived in LTC facilities were the oldest of the three subpopulations in the 2 years investigated, and, as expected, they had considerable health- and dependency-related care needs. They were therefore expected to be the highest users of hospital services. Instead, the findings clearly show that LTC residents were the least likely of the three groups to use hospital-based inpatient and ambulatory services. More specifically, they were the least likely to be hospitalized, to spend numerous days in hospital, to go to an emergency room, or to receive other ambulatory/outpatient services. It should be stressed that LTC residents do not receive any formal home care. These LTC residents, however, received more physician services than the home-care recipients and other elderly, although the physician services they received were at a lower average cost per service. Physician fee-for-service payments are based largely on the complexity of care required, the degree of specialization needed to address the presenting health concern, and the amount of time needed to provide each service. A low average cost would therefore reflect routine physician services as opposed to major assessments or treatments. Indeed, the nurse managers of LTC facilities in Alberta expect family physicians to see residents on a monthly basis whether the person is ill or not. At these monthly visits, the care plan and all medications are routinely reviewed by the nursing team and the physician. Additional physician services are secured when LTC facility nurses telephone the physician to report a change in the resident's condition, with telephone orders often constituting a low-cost physician service.

These findings are at considerable odds with popular opinion about the effect of aging on health services utilization. The results of previous research also indicate that aging is a significant factor in health services utilization (Anderson et al., 1990; Barer et al., 1989; Black et al., 1995; Desmeules et al., 1993; Hertzman & Hayes, 1985; Roos et al., 1987; Roos et al., 1989; Shapiro & Tate, 1989; Stokes & Lindsay, 1996). Although a 2-year data span, the use of late-1990s data, and the use of comprehensive population-level health services data lend credibility to the present findings, the study was confined to one Canadian province. Alberta could have unique health services delivery and utilization patterns, particularly as 50% of all acute-care beds were permanently closed in response to a series of government funding reductions from mid-1993 through mid-1995 (Alibhair, Saunders, Johnston, & Bay, 2001). As rising health services utilization with population aging is a national if not international concern (Commission on the Future of Health Care in Canada, 2002; Wiener, Estes, Goldenson, & Goldberg, 2001), replication studies are warranted.

The findings of lower hospital and ambulatory or tertiary-level health services utilization by LTC residents could be viewed as a consequence of age- or facility-based stigmatization and discrimination. However, the present study found that, compared to the other two groups, when LTC residents were hospitalized or when they accessed other health services they received the same or even a higher level of acute and treatment-oriented care. In short, the findings do not support the concern that LTC residents are prohibited from obtaining acute diagnostic or treatment-oriented care.

As population-level databases have few sociodemographic or other variables for explanatory purposes, a series of meetings with LTC and home-care nurses, LTC and home-care administrators, and physicians was held to discuss the findings of this study. At these meetings, a number of factors were identified that may help to explain why LTC residents have lower tertiary-care utilization. One of the main factors, despite much concern about the quality of care provided in nursing homes and other LTC facilities (Hughes & Lapane, 2002; Munroe, 1990), is that LTC facilities provide a number of services designed to maintain or improve health, prevent health problems, and identify emerging health problems (Feldman & Kane, 2003). These services include 24-hour, 7-day-a-week nursing care, 24-hour RN coverage, initial and then monthly multidisciplinary care planning, routine monthly medical care and additional rapid medical care in response to telephone calls, direct medication administration, annual flu vaccinations, fall-prevention programs, individualized safety precautions when needed, frequent in-house and external social events, bowel routines, and regular meals or meal substitutes. LTC facilities also have oxygen and intravenous fluids available, and they arrange transportation for residents who need to access other health services. Another key feature of LTC is advanced-care planning in relation to the use of cardiopulmonary resuscitation and other life supports. Although the present study was not designed to establish this fact, the lower use of hospitals, day surgery, outpatient clinics, and emergency rooms by institutionalized seniors could be an outcome of comprehensive care planning and provision of primary care. Further research is needed, however, to describe LTC services and validate outcomes of facility-based LTC. This research is particularly relevant given the current trend towards deinstitutionalizing LTC residents and not institutionalizing candidates for facility-based LTC (Brody, Simon, & Stadler, 1997; Challis, Darton, Hughes, Stewart, & Weiner, 2001; Wiener et al., 2001).

Home-care recipients were found to be the highest users of all health services with the exception of LTC. This utilization pattern may illustrate, as reported by others (Bowles, Naylor, & Foust, 2002; Jette,

Tennstedt, & Crawford, 1995), that home care is provided in insufficient quantity to effectively manage illnesses or maintain the health of persons who have health problems and care needs such that they require ongoing formal home support. Although the present study could not establish whether the health status of LTC residents and home-care recipients varied, it did find similar average ages and age ranges. Other research has found home-care recipients and LTC residents to be similar in both age and health status (Bridges-Webb et al., 1987; Madigan, Schott, & Matthews, 2001; Shugarman, Fries, & James, 1999). Considering the many potential benefits of formal home care, one might wonder why the home-care recipients in the present study were such high users of health services. Indeed, over half of all home-care recipients were admitted to hospital one or more times during the 2 years, as compared to only one in five LTC residents or other elderly. Other measures also clearly illustrate high use among home-care recipients; over 70% made one or more emergency room visits and had one or more ambulatory procedures performed in the 2 years. In addition, home-care recipients were hospitalized an average of 16.4 days in the 2 years (as compared to 2 or 3 days for the other groups), with each hospital stay also significantly longer (11.4 days) than the average stay for LTC residents and the other elderly (9.1 and 7.5 days, respectively).

Beyond learning from various care providers that home care is rationed in Alberta (as it is across much if not all of Canada) in terms of total number of clients and the amount of care that can be provided per client, no other sources of information were available to explain why home-care recipients were the highest users of most health services. For this reason, it is relevant to consider possible issues for further research. One issue is the outcomes associated with the extensive use of nursing aides as direct home-care providers (Wilson et al., 2005). RN case coordinators may be too few in number to assess clients and develop plans that effectively maintain or improve their health. It is also possible that more direct-care RNs or RN training of nursing aides is needed, so that emerging health problems can be detected early and the need for hospital care reduced. Nurse practitioners are infrequently employed in home care even though their knowledge of health promotion and illness surveillance and their skill in medication monitoring and prescribing have been shown to be very beneficial for chronically ill persons (Leveille et al., 1998; Running & Walker, 1999). Still other research and program evaluations could be undertaken to determine whether care delivered to home-care recipients is based on a traditional medical model such that it is largely intermittent and illness-oriented while care delivered to LTC residents is based on a primary care, continuity of care, and/or health promotion model.

Another surprising finding is a higher level of tertiary-care utilization by the seniors who were not institutionalized nor receiving home care. This finding raises many of the same questions addressed above with regard to home care. Also, one must wonder whether community-based seniors have appropriate health-care programming (Wiener et al., 2001). These seniors, too, may be receiving primarily episodic, illness-oriented care as opposed to more proactive health-maintenance services. A number of researchers have identified the potential for health promotion among seniors (Bowles, Naylor, & Foust, 2003; DeCoster, Roos, & Carriere, 1997). Still others report that health services utilization is related far less to age than to discontinuity of care and unmet health-care needs (Bergman et al., 1997; Kayser-Jones, Wiener, & Barbaccia, 1989).

Although the community-based seniors in this study were found to be younger on average than the home-care and LTC recipients, a large proportion of community-based seniors have been found to have one or more chronic illnesses (Montbriand, 2004). A small but largely unknown proportion is likely to be in considerable need of ongoing assistance. Family caregiving is a common form of senior care (Pinquart & Sorenson, 2002), which raises the issue of whether informal caregiver burnout is a reason for emergency room visits and hospitalizations by seniors who are not receiving formal home care, institutionally based daycare, or LTC support. Still other researchers ask whether health services utilization is a function less of age than the severity of the illness and the individual physician's choice of treatments to address it (Johansen, Nair, & Bond, 1994; Wilson & Truman, 2002). Perhaps advanced-care planning for community-based seniors, such as that entailed in living wills, should be made a focus of community nurse advocacy.

Conclusion

This population-based study found that, in one province of Canada, elderly LTC residents were less likely to use hospital care, outpatient care, day surgery, and emergency room care than home-care recipients and other seniors. Yet when LTC residents were hospitalized or receiving other ambulatory services, they were not disadvantaged in terms of receiving acute tertiary-level care. These findings raise the possibility that lower use of expensive and limited tertiary care could be an outcome of programs and services in LTC facilities that approximate a primary care model. In addition to having their daily care needs addressed, LTC residents may be benefiting from early identification of and attention to emerging health problems and proactive approaches to existing or potential problems. This raises concerns about the current trend towards

deinstitutionalizing LTC residents and not institutionalizing candidates for facility-based LTC. The present results indicate that, if adequate home support is not available, this trend could be a case of "penny wise and pound foolish."

The results of this study should be of interest to nurses in most health-care sectors, since the study crosses many sectors and thus many aspects of nursing, regardless of nurses' particular roles and functions within the health-care system. LTC and home-care nurses in particular are encouraged to use the findings for planning and policy purposes. At the very least, the results should stimulate discussion and research on care options for the elderly. Investigations that evaluate current care options for seniors, and identify effective methods for reducing health services utilization through enhanced health and well-being, are particularly needed if we are to ensure an optimal future for the elderly. For far too long, illness has been considered a natural outcome of aging. Furthermore, care options have been tailored to this prevailing paradigm.

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